

Publications for 2006

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Journal Papers, Proceedings Papers and NASA TMs

1. Abdul-Aziz, A.: "Non-destructive Testing of Ceramic Materials," *Journal of Materials Evaluation*, Vol. 64, No. 1 (January 2006)
2. Abdul-Aziz, A.: "NDT of Ceramics: An Introduction to the Technical Focus Issue," *Journal of Materials Evaluation*, Vol. 64, No. 1 (January 2006)
3. Abdul-Aziz, A. and Krause, D.J.: "Combined Experimental and Analytical Study Using Cruciform Specimen for Testing Advanced Aeropropulsion Materials Under In-Plane Biaxial Loading," Proceedings of the 11th SPIE's Annual International Symposium on Nondestructive Evaluation for Health Monitoring and Diagnostics, San Diego, CA (February 26 – March 2, 2006)
4. Abdul-Aziz, A. and Krause, D.J.: "Cruciform Specimen Design for Testing Advanced Aeropropulsion Materials under Cyclic In-Plane Biaxial Loading," Proceedings of the 11th SPIE's Annual International Symposium on Nondestructive Evaluation for Health Monitoring and Diagnostics, San Diego, CA (February 26 – March 2, 2006)
5. Abdul-Aziz, A., Saury, C., Xuan, B. and Young, P.G. "On the Material Characterization of a Composite Using Micro CT Image Based Finite Element Modeling," Proceedings of the 11th SPIE's Annual International Symposium on Nondestructive Evaluation for Health Monitoring Diagnostics, San Diego, CA (February 26 – March 2, 2006)
6. Abdul-Aziz, A., Trudell, J.J. and Baaklini, G.Y.: "Finite Element Design Study of a Bladed, Flat Rotating disk to Simulate Cracking in a Typical Turbine Disk, Part II," Proceedings of the 11th SPIE's Annual International Symposium on Nondestructive Evaluation for Health Monitoring and Diagnostics, San Diego, CA (February 26 – March 2, 2006)

7. Aldrin, J.C., Roth D.J. et al: "Protocol and Assessment of Signal Processing and Feature Extraction Methods for Terahertz NDE for Spray-On Foam Insulation," Presentation and Proceedings of Article for 33rd Annual Review of Progress in Quantitative Nondestructive Evaluation, Portland, OR (July 30 – August 4, 2006)
8. Baaklini, G.Y.: "Propulsion Health Monitoring – Physics Based Modeling, Testing and Instrumentation," 2nd Dresden Airport Seminar, Dresden, Germany (November 15, 2006)
9. Cosgriff, L.M., Roberts, G.D., Averbeck, T., Jeanneau, P. and Quddus, M.: "An Examination of Nondestructive Evaluation Techniques for Polymer Matrix Composite Sandwich Materials," Proceedings of SPIE Eds.: Mufti, A.A., Gyekenyesi, A.L., Shull, P.J., Vol. 6176, pp. 1 – 10 (2006)
10. Cosgriff, L.M., Roberts, G.D., Binienda, W.K., Zheng, D., Averbeck, T., Roth, D.J. and Jeanneau, P.: "An Analysis of Nondestructive Evaluation Techniques for Polymer Matrix Composite Sandwich Materials," NASA/TM-2006-214349
11. Eldridge, J.I. and Bencic, T.J.: "Delamination Monitoring in Plasma-Sprayed Thermal Barrier Coatings by Reflectance-Enhanced Luminescence," International Conference Metallurgical Coatings & Thin Films (ICMCTF), submitted March 2006, presented in San Diego, CA (May 1-5, 2006)
12. Eldridge, J.I., Bencic, T.J., Spuckler, C.M., Singh, J. and Wolfe, D.E.: "Delamination-Indicating Thermal Barrier Coatings Using YSZ:Eu Sublayers," accepted for publication in the *Journal of the American Ceramic Society* (September 2006)
13. Eldridge, J.I., Martin, R.E. and Spuckler, C.M.: "Monitoring Delamination Progression in Thermal Barrier Coatings by Mid-Infrared Reflectance Imaging," *International Journal of Applied Ceramic Technology*, Vol. 3, No. 2, pp.94 – 104 (2006).
14. Geer, R., Meyendorf, N., Baaklini, G.Y. and Voguel, D.W.: Testing, Reliability and Application of Micro- and Nanomaterial Systems IV, the International Society for Optical Engineers (SPIE) Proceedings, Vol. 6175 (2006)
15. Gyekenyesi, A. and Morscher, G.N.: "In-Situ Acousto-Ultrasonics as Applied to Ceramic Matrix Composites Subjected to Tensile Loads," ASNT 15th Annual Research Symposium, Orlando, FL (March 2006)
16. Gyekenyesi, A.L. and Morscher, G.N.: "Using Thermoelastic Stress Analysis to Study Stress Redistribution in Notched Ceramic Matrix Composites," submitted to *Composite Science and Technology Journal* (2006)
17. Gyekenyesi, A.L., Morscher, G.N. and Cosgriff, L.M.: "In situ monitoring of damage in SiC/SiC composites using acousto-ultrasonics," *Composites Part B: Engineering*, Vol. 37, Issue 1, pp. 47-53 (January 2006)
18. Hicks, Y.R., Locke, R.J., Anderson, R.C., Yen, C.H. and Robinson, H.: "Optical Evaluation of Fuel Injection and Mixing Processes in a 10kWe Fuel Reformer," the 24th AIAA Aerodynamic Measurement Technology and Ground Testing Conference, San Francisco, CA (June 5-8, 2006)
19. Hoffman, D., Hunter G.W., Jankovsky, A., Tolbert, C. and Oberle, L.G., "H₂O₂ Hazgas Leak Detection," presented at the DIWG, MSFC (November 14, 2006)
20. Hunter, G.W., Okojie, R.S., Oberle, L., Krasowski, M., Beheim, G.M., Fralick, G., Wrbanek, J.P., Greenberg, P., Neudeck, P.G. and Xu, J.: "Microsystems

Instrument Electronics and Mobile Sensor Platforms," 2006 JPL Conference (June 27 – 30, 2006)

21. Hurwitz, F.I., Martin, R.E., McCue, T.R., Ohlhorst, C.W., Wurster, K.E., Gubert, M.K., Kiser, J.D. and Valentine, P.G.: "Oxidation Behavior of CMC Candidate Materials for Lightweight Nonmetallic TPS for NASA Exploration Missions," Proceedings of the 2006 National Space and Missile Materials Symposium, Orlando, FL (June 26-30, 2006)
22. Jurns, J. and Lekki, J., "Clogging of Joule-Thomson Devices in Liquid Hydrogen Handling," 42nd JPC Conference (September 2006)
23. Koch, L.D., Van Zante, D.E., Wernet, M.P. and Podboy, G.G.: "An Assessment of NASA Glenn's Aeroacoustic Experimental and Predictive Capabilities for Installed Cooling Fans Part 2: Source Identification and Validation," 35th International Congress and Exposition on Noise Control Engineering (December 2006)
24. Lock, J.A., Wrbanek, S.W. and Weiland, K.E.: "Scattering of a tightly focused beam by an optically trapped particle," *Applied Optics*, Vol. 45, No. 15, pp. 3634 – 3645 (May 20, 2006)
25. Martin, R.E., et al: "Effects of Space and Planetary Entry Environments on TPS Materials," Integrated Test Plan and Report, Paper No. MSFC-RPT-3486 (October 2006)
26. Martin, R.E., Mandlik, A., Popek, W., Sonpatki, M., Sandhu, J., Roth, D. and Pergantis, C.: "Comparison of Reflection Mode Acoustography and C Scan Ultrasonic Techniques for the Single Sided Inspection of Aerospace Materials," American Society of Nondestructive Testing Research Symposium, Orlando, FL (March 13-17, 2006). Also SPIE's Annual International Symposium on Nondestructive Evaluation for Health Monitoring and Diagnostics, San Diego, CA (February 26 – March 2, 2006)
27. Meyendorf, N., Baaklini, G.Y. and Michel, B.: Advanced Sensor Technologies for NDE and Structural Health Monitoring II, Proceedings, Vol. 6179 (2006)
28. Mielke, A.F., Elam, K.A. and Sung, A.J.: "Instrumentation System using Rayleigh Scattering for Measurement of Temperature, Velocity and Density Fluctuations in Unseeded Gas Flows," 52nd ISA International Instrumentation Symposium, Cleveland, OH (May 10, 2006)
29. Mielke, A.F., Elam, K.A. and Sung, C.J.: "Molecular Rayleigh Scattering Diagnostic for Temperature, Velocity and Density Measurements," 25th Annual AIAA Aerodynamic Measurement Technology and Ground Testing Conference, San Francisco, CA, Paper No. AIAA-2006-2969 (2006)
30. Mielke, A.F., Elam, K.A. and Sung, C.J.: "Rayleigh Scattering Diagnostic for Measurement of Temperature, Velocity and Density Fluctuation Spectra," 44th AIAA Aerospace Sciences Meeting, Reno, NV, Paper No. AIAA-2006-0837 (2006)
31. Mielke, A.F., Elam, K.A. and Sung, C.J.: "Rayleigh Scattering Diagnostic for Measurement of Temperature, Velocity and Density Fluctuations in Turbulent Flows," Great Lakes Photonics Symposium, Dayton, OH (June 15, 2006)
32. Mufti, A., Gyekenyesi, A. and Shull, P., editors: NDE and Health Monitoring of Aerospace Materials, Composites and Civil Infrastructure V - Proceedings of SPIE, San Diego, CA (February 26 – March 2, 2006)

33. Paxson, D.E., Wernet, M.P. and John, W.T.: "An Experimental Investigation of Unsteady Thrust Augmentation Using a Speaker-Driven Jet," the *AIAA Journal* (January 2006)
34. Roth, J.D., Martin, R.E., Hetert, L., Chelmins, T.D., Mandlik, A., Cosgriff, L.A. and Sandhu, J.: "Quantitative Ultrasonic Imaging Using Liquid Crystal Display Technology for Ceramics and other Composites," *Materials Evaluation*, Vol. 64, No. 1 (January 2006)
35. Roth, D.J., Martin, R.E., Cosgriff, L.A., Rauser, R.W., Bodis, J.R., Wincheski, R.W. and Gray, J.N.: "Recent Efforts in NDE Characterization of Ceramic Matrix Composites at NASA Glenn Research Center," Invited presentation for CMH-17 (Composite Materials Handbook), Ceramic Matrix Composite (CMC) Handbook Coordination Meeting, Rolls Royce Corporate Training Center, Indianapolis, IN (September 19-20, 2006)
36. Roth, D.J., Seebo, J.P., Trinh, L.B., Walker, J.L. and Aldrin, J.C.: "Signal Processing Approaches for Terahertz Data Obtained from Inspection of the Shuttle External Tank Thermal Protection System Foam," Presentation and Proceedings Article for 33rd Annual Review of Progress in Quantitative Nondestructive Evaluation, Portland, OR (July 30 – August 4, 2006)
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38. Sawicki, J.T: "Rotor Fault Diagnosis Utilizing Active Magnetic Bearings," Insights in Research and Technology Symposium, The Research and Technology Directorate, NASA Glenn Research Center, Cleveland, OH (July 21, 2006)
39. Sawicki, J.T. and Baaklini, G.Y.: "Recent Advances in Vibration Based Damage Detection Techniques for Cracked Rotors," accepted for 3rd European Workshop on Structural Health Monitoring, Granada, Spain (July 5-7, 2006)
40. Sawicki, J.T. and Baaklini, G.Y.: "Vibration Based Damage Detection Techniques for Cracked Rotors," Invited Paper, 47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference (May 1-4, 2006)
41. Sawicki, J.T., Gyekenyesi, A.L. and Baaklini, G.Y.: "Rotor Fault Diagnosis Utilizing Active Magnetic Bearings," SPIE's 13th Annual International Symposium on Smart Structures and Materials, Can Diego, CA (February 26 – March 2, 2006)
42. Wilson, J., Wernet, M.P. and Paxson, D.E.: "Vortex Rings Generated by a Shrouded Hartmann-Sprenger Tube," *AIAA Journal*, Vol. 44, No. 11, pp. 2706 – 2718 (November 2006)
43. Tacina, K.M, Hicks, Y.R., Anderson, R.C., Locke, R.J., Robinson, H. and Yen, C.H.: "Experimental Performance of a Swirl-Venturi Fuel Mixer for a Fuel Cell Reformer," IGTI ASME Turbo Expo 2006, Barcelona, Spain (May 8-11, 2006)
44. Van Zante, D.E., Koch, L.D., Wernet, M.P. and Podboy, G.G.: "An Assessment of NASA Glenn's Aeroacoustic Experimental and Predictive Capabilities for Installed Cooling Fans Part 1: Aerodynamic Performance," 35th International Congress and Exposition on Noise Control Engineering (December 2006)
45. Wernet, M.P.: "Symmetric Phase Only Filtering for Improved DPIV Data Processing," 44th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Paper No. AIAA-2006-0042 (January 2006)